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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,865	06/26/2003	John Kevin Collins	1377-0188P	1455

2292 7590 07/16/2007
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EXAMINER	
MARX, IRENE	

ART UNIT	PAPER NUMBER
1651	

NOTIFICATION DATE	DELIVERY MODE
07/16/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/603,865	COLLINS ET AL.	
	Examiner	Art Unit	
	Irene Marx	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-7 and 9-11* is/are pending in the application.

4a) Of the above claim(s) *11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-7,9 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/14/07 has been entered.

Newly submitted claim 11 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 1, 2, 5-7 and 9-10 are directed to an isolated or purified antimicrobial agent which appears to be proteinaceous.

Claim 11 is directed to a specific DNA sequence coding for a specific product, i.e. bacteriocin(s) APB118.

Inventions I and II are directed to related products. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed are not capable of use together and can have a materially different design, mode of operation, function, or effect. The antimicrobial agent is chemical distinct from the polynucleotide sequence of group II. Moreover the claimed inventions do not overlap in scope. The elected claims are not directed to any antimicrobial agent or bacteriocins with any specificity, while the DNA of SEQ. ID NO: 6 codes bacteriocin ABP118. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 3-4 and 11 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 1, 2, 5-7 and 9-10 are being examined on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 9-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2 and 10 are vague, indefinite and confusing in that there is no indication as to how the "apparent" molecular weight is determined. The claim is further confusing in that the standards to score for "sensitivity" or "resistance" are not set forth with any particularity. For example, the concentration of the challenging solvent or enzyme is not delineated.

In addition, it is unclear what "resistance over wide pH range" entails.

Claim 9 is vague, indefinite and confusing in the recitation of "is adherent to Caco-2 and HT-29 cells and said antimicrobial agent having antimicrobial activity into a cell-free supernatant". Is the antimicrobial agent adherent to Caco-2 and HT-29 cells?

Claim 10 is vague, indefinite and confusing in the phrase "wherein said *Lactobacillus salivarius* is isolated from resected and washed human gastrointestinal tract which inhibits a broad range of Gram positive and Gram negative microorganisms, is adherent to Caco-2 and HT-29 cells, and secretes said antimicrobial agent having antimicrobial activity into a cell-free supernatant". It is unclear what is intended. The properties of the strain and the antimicrobial agent are not readily interchangeable as suggested by the invention as now claimed.

Response to Arguments

Applicant's arguments have been fully considered but they are not deemed to be persuasive.

Applicant appears to indicate that the wide range of pH stability is intended to mean from 2.0 to 6.0. However, the cited portions of the specification pertain to *Lactobacillus* and not to any antimicrobial agent. Moreover, there is no clear definition of "wide pH range" found in the specification in the claimed context.

Applicant argues that apparent molecular weight is accepted terminology in the context of ultrafiltration. However, the invention as claimed does not pertain to a molecular weight measured by ultrafiltration methods.

Therefore the rejection is deemed proper and it is adhered to.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
> This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,2, 5-7 and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Arihara *et al.* (Lett. Appl. Microbiol. **22(6):**420-424).

The claims are directed to a product having antimicrobial activity produced by a *L. salivarius* strain and having certain properties.

Arihara *et al.* disclose various product having antimicrobial activity produced by *L. salivarius* strains, which are destroyed by proteinases and which have bacteriocins-like properties. The properties indicated at claim 2 are not specifically disclosed, but are inherent in at least one of the products disclosed. See, e.g., Tables 1 and 2.

The disclosed agent would be suitable for the intended uses of claims 5-7 at least to some extent.

Response to Arguments

Applicant's arguments and Declarations have been fully considered but they are not deemed to be persuasive.

Applicant's extensive arguments directed to the unexpected properties of *Lactobacillus salivarius* strains. Yet the claims are directed to an "antimicrobial agent" claimed in terms of the process used to make it.

That a specific bacteriocin having specific properties is produced by the specific strain *L. salivarius subsp. salivarius* UCC118 is not informative of the properties of the product as claimed obtained from any strain of *L. salivarius.*

Applicant argues that the present invention "survives" over a wide range of pH such as 2.0. It is unclear what is intended by "survives" in connection with an antimicrobial compound.

The portions of the O'Mahoney declaration provided pertain to differences in properties between the *S. salivarius* strains. However, the product as claimed is claimed as a product by process. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a Novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

Furthermore, the composition is claimed as a product-by-process. Since the U.S. Patent and Trademark Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make comparisons therewith, a lesser burden of proof is required to make out a case of prima facie anticipation/obviousness for product-by-process claims because of their peculiar nature than when a product is claimed in the conventional manner. MPEP 2113. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." In re Spada, 911 F.2d 705, 709, 15

USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 562 F.2d at 1255, 195 USPQ at 433. The fact that the reference does not disclose the adherence of *L. salivarius* to human gastrointestinal tract is immaterial to the invention as claimed.

Similarly, the site of isolation of the strain of Arihara is not relevant to the properties of an antimicrobial agent.

Applicant has failed to patentably distinguish the claimed antimicrobial product over the reference antimicrobial product with objective evidence.

Therefore the rejection is deemed proper and it is adhered to.

Claims 1,2, 5-7 and 9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ten Brink *et al.*.

The claims are drawn to an antimicrobial agent which has been isolated from *L. salivarius* and which has certain properties.

The cited reference discloses an antimicrobial product produced by a *Lactobacillus* strain which appears to be identical to the presently claimed product (see, e.g., page 144, table 1) since its activity is destroyed by a protease such as trypsin and has an apparent molecular weight of about 30 kDA, is moderately heat stable, is resistant over a wide pH range. The product has a broad spectrum antimicrobial activity. The referenced agent appears to be identical to the presently claimed agent and is considered to anticipate the claimed agent since it is likely to be resistant to the same enzymes as recited due to its proteinaceous nature. The intended uses of the product would be the same. Consequently, the claimed product appears to be anticipated by the reference.

In the alternative, even if the claimed agent is not identical to the referenced compound with regard to some unidentified characteristics, the differences between that which is disclosed and that which is claimed are considered to be so slight that the referenced agent is likely to inherently possess the same characteristics of the claimed agent particularly in view of the similar characteristics which they have been shown to share. Thus the claimed product would have been obvious to those skilled in the art within the meaning of USC 103.

The disclosed agent would be suitable for the intended uses of claims 5-7 at least to some extent.

Accordingly, the claimed invention as a whole was at least prima facie obvious, if not anticipated by the reference, especially in the absence of evidence to the contrary.

Response to Arguments

Applicant's arguments and Declarations have been fully considered but they are not deemed to be persuasive.

Applicant's extensive arguments directed to the unexpected properties of *Lactobacillus salivarius* strains. Yet the claims are directed to an "antimicrobial agent" claimed in terms of the process used to make it.

That a specific bacteriocin having specific properties is produced by the specific strain *L. salivarius subsp. salivarius* UCC118 is not informative of the properties of the product as claimed obtained from any strain of *L. salivarius.*

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process claims because of their peculiar nature than when a product is claimed in the conventional manner. MPEP 2113. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 562 F.2d at 1255, 195 USPQ at 433.

The fact that the reference does not disclose the adherence of *L. salivarius* to human gastrointestinal tract is immaterial to the invention as claimed.

Similarly, the site of isolation of the strain of ten Brink is not relevant to the properties of an antimicrobial agent.

Regarding "heat stability", it is noted that no definition is provided. Therefore, the standard required is not set forth with sufficient particularity for a determination of differences between the reference and the invention as claimed (Response, page 21, paragraph 2). It is also noted that the claims are not directed to ABP118. Therefore, comparisons therewith are irrelevant.

As noted previously, there is no clear correlation between "secretory products" and the antimicrobial agent as claimed. Therefore, the thrust of the argument is unclear.

Applicant has failed to patentably distinguish the claimed antimicrobial product over the reference antimicrobial product with objective evidence.

Therefore the rejection is deemed proper and it is adhered to.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irene Marx whose telephone number is (571) 272-0919. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 .

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irene Marx
Primary Examiner
Art Unit 1651